19

ENVIRONMENTAL ASSESSMENT
PROPOSED MINOR BOUNDARY MODIFICATIONS AND LAND EXCHANGE

FOR

OLYMPIC NATIONAL FOREST
OLYMPIC NATIONAL PARK
STATE OF WASHINGTON

DECEMBER 1985

Robert S. Chandler
Superintendent
Olympic National Park

Ted C. Stubblefield
Forest Supervisor
Olympic National Forest

TABLE OF CONTENTS

PURPOSE AND NEED FOR ACTION 1
Objectives of the Boundary Study..... 2
INTERRELATIONSHIPS WITH OTHER PROPOSALS..... 3
DESCRIPTION OF THE AFFECTED ENVIRONMENT..... 3
Climate..... 5
Land Management..... 5
Geology..... 6
Minerals..... 7
Vegetation..... 7
Wildlife and Fish..... 8
Water and Air Resources..... 9
Human Use.....10
Cultural Resources.....11
Summary of Lands.....11
ALTERNATIVES.....17
Preferred Alternative.....17
No Action Alternative.....18
Include Additional Boundary Modifications.....19
Eastern Boundary.....19
Sams River and Finley Creek.....19
Madison Creek and Alckee Creek.....19
Modify All Park and Forest Common Boundaries.....20
ENVIRONMENTAL CONSEQUENCES.....20
Preferred Alternative.....20
No Action Alternative.....23
Include Additional Boundary Modifications.....23
Eastern Boundary.....23
Sams River.....24
Madison Creek and Alckee Creek.....25
Modify All Park and Forest Common Boundaries.....25
MITIGATING MEASURES.....26
CONSULTATION AND COORDINATION.....26

MAPS

OLYMPIC PENINSULA AREA 4

STORM KING/BALDY/LAKE CRESCENT 13

RUGGED RIDGE/PINE MOUNTAIN 14

LAKE QUINAULT 15

SOLEDUCK 16

PURPOSE AND NEED FOR ACTION

Olympic National Forest and Olympic National Park share many common boundaries in northwestern Washington. A high degree of cooperation has existed between these federal land management jurisdictions on a variety of programs. However, some of the existing boundaries separating park and forest have created problems for both agencies in fulfilling their respective missions. These are found in selected areas where existing boundaries do not follow natural topographic features and hydrographic divides. Established earlier in the century, many of the boundaries are drawn on township and section lines which do not always meet logical resource management needs or serve the best interests of the public. Existing straight line boundaries do not protect complete watersheds. The upper portions of some park watersheds lie outside park boundaries thus allowing land uses that could affect recreation and scenic resources downstream. Also, timber cutting and development could occur in the upper portions of some watersheds affecting the visual integrity within drainages. In the Rugged Ridge area, the existing park boundary effectively blocks access to portions of the forest since logging roads cannot be built through the park.

In 1976, Congress enacted legislation which redefined selected boundaries of the park including one boundary between the park and forest and a major boundary between the park and lands administered by the State of Washington Department of Natural Resources. That legislation has resulted in more efficient land management for all agencies involved. Boundaries which can easily be identified on the ground utilizing natural features were established. Resource management was aided by establishing boundaries that correlate to natural systems. Cost savings for the various agencies were realized.

As a result of the positive effects of the earlier exchange and recognizing a need to solve specific problems caused by the boundaries between the park and forest, staff of Olympic National Park and Olympic National Forest started a detailed study to determine whether there were other areas where minor boundary changes could facilitate their management objectives while serving the public interest.

The objectives of the boundary study were as follows:

1. Improve land management.

2. Achieve management cost savings.

3. Solve on-the-ground management and/or resource problems. Identify those changes that achieve a specific goal rather than changes that do not further specific needs.

4. Protect critical resources.

This study resulted in a recommendation (preferred alternative) which makes minor revisions in the park and forest boundary.

Another part of the preferred alternative is a series of minor additions to Olympic National Park. First, the existing park boundary in the vicinity of Lake Crescent does not include the immediate viewshed, watershed, and all of the lands needed for the protection and management of the lake environment. Along the eastern end of the lake the current boundary comes within a few feet of the lakeshore.

Second, just to the west of Lake Crescent the Soleduck Road leaves Highway 101 and travels some 12 miles into the park terminating at the Sol Duc Hot Springs Resort, the Soleduck Campground, and a trailhead for some of the most popular backcountry hiking in the park (Seven Lakes Basin and High Divide). Along the first 4 miles of the Soleduck Road, the existing park boundary comes within 20 feet of the road surface. Proposals to reconstruct the road with some alignment changes would eliminate the very narrow buffer in some areas. Along the first four miles of the road, the lands adjacent to the park are managed for timber production. If not added to the park, it is expected that these lands will be clear-cut and/or developed to the road shoulder (park boundary) within the next few years. The potential exists for commercial development to occur to the shoulder of the road. Also, lands that can be added would facilitate park interpretation planned for the road environment as traffic turnouts for interpretive exhibits, walks, and viewpoints are planned along the road.

Both the boundary of the park and forest are currently established by Federal law. An Act of Congress is necessary before any alternative, except the No Action alternative, can be implemented.

INTERRELATIONSHIPS WITH OTHER PROPOSALS

In 1974, the National Park Service studied the suitability of Olympic National Park for designation as wilderness. This study was completed pursuant to the provisions of the Wilderness Act of 1964. Most of the interior of the park, including some lands in the various alternatives of this assessment, were recommended for wilderness designation. Any changes in the park/forest boundary would affect that earlier recommendation.

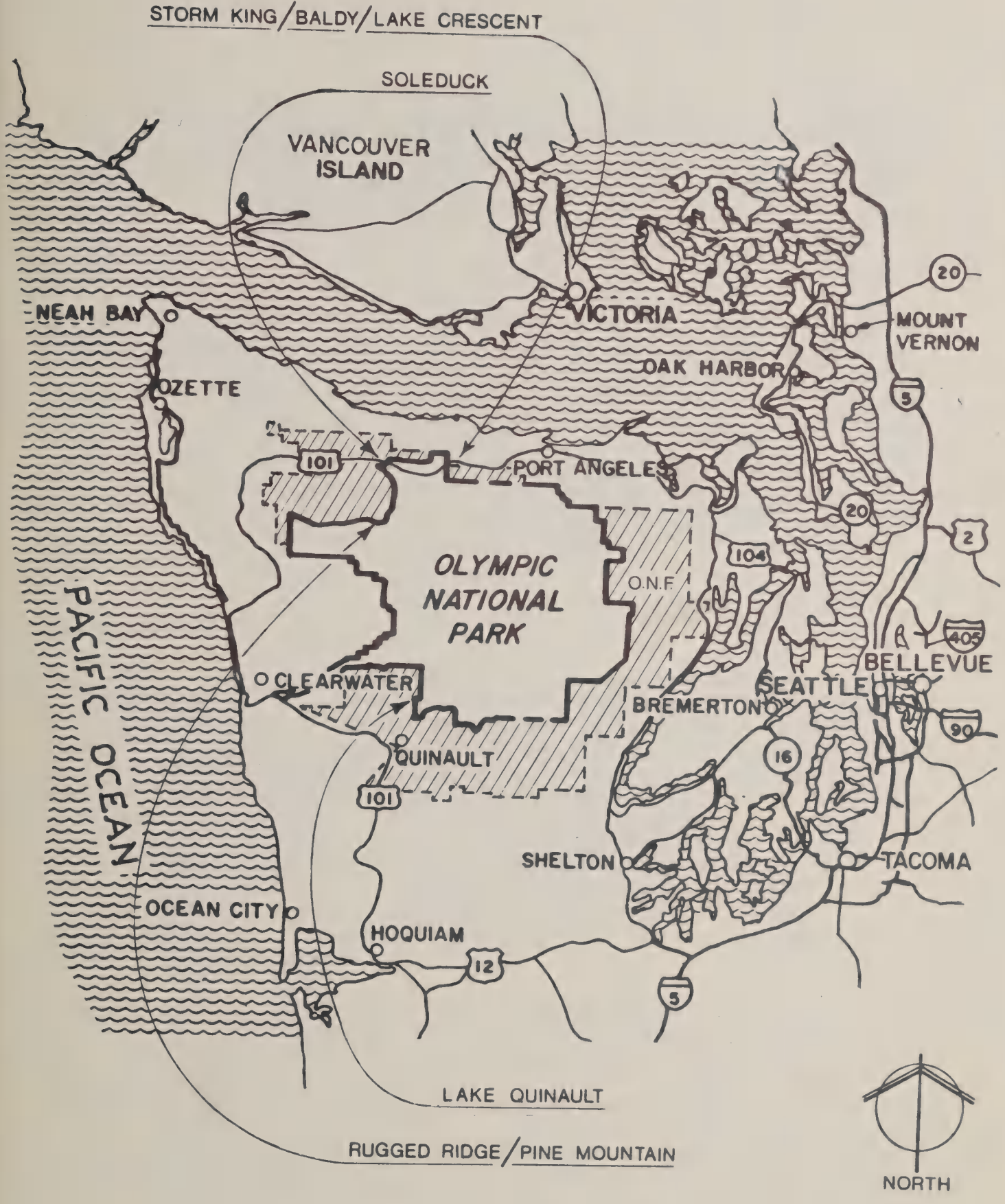
The Washington Wilderness Act of 1984 designated certain lands on the Olympic Peninsula as wilderness. Included in this designation are lands on the forest directly adjacent to the park along the east side of the peninsula. The Olympic National Forest is currently developing a forest management plan in accordance with the requirements of the National Forest Management Act. This plan and accompanying Environmental Impact Statement will analyze a variety of potential land uses on various portions of the forest, including designation of areas for timber management. The various proposals discussed in this assessment will affect the forest planning process in only minor ways.

The State of Washington Department of Natural Resources is exploring a variety of land exchanges on the Olympic Peninsula for the purpose of consolidating land ownerships into large blocks. Some of these potential exchanges involve national forest lands adjacent to lands identified in this assessment.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

The Olympic Peninsula in northwest Washington is a separate and unique geophysical province surrounded on three sides by salt water. This 6,500 square mile area is an association of complex winding ridges, precipitous mountains, deep canyons, and forested slopes. It is ecologically isolated, bounded on the west, north, and east by large bodies of salt water, and on the south by lowland coniferous forests.

During glacial periods, this isolation was reinforced by the 3,000 foot thick glaciers that occurred to the north and east (forming Puget Sound). Eight species and varieties of plants, five mammals, and three varieties of fish are endemic (occur nowhere else) to the Olympics. Several mammals including the mountain goat, mountain sheep, grizzly bear, moose, pika, golden mantled ground squirrel, and wolverine never migrated to the peninsula from the Cascade Mountains to the east. Similarly, several plants, including the noble fir, did not naturally disperse into the Olympics. The geographic isolation of the peninsula, in combination with the wide variation in annual rainfall and maritime climate, has resulted in the evolution of a distinct ecosystem.



Olympic Peninsula Area

The peninsula is noted for its incredible variety within short distances. Within the 35 miles between the Pacific Ocean and Mount Olympus, the highest point on the peninsula at 7,965 feet, the vegetation changes from the lush temperate rain forests of the Hoh, Queets, and Quinault valleys to an environment of lichens and mosses above 5,000 feet.

Climate

The peninsula is also noted for its variety in rainfall. Cool, wet winters and mild, dry summers with small daily temperature variations characterize the maritime climate of the Olympics. On the western side of the peninsula are the dense rain forests where annual precipitation can exceed 150 inches per year. In contrast, the northeastern reaches of the area in the vicinity of Sequim, which is in the rain shadow of the mountains, receive less than 20 inches of rain annually. Most of the winter precipitation falls as rain in elevations below 2,000 feet, as rain and snow between 2,000 and 4,500 feet, and as snow above 4,500 feet. The winter season snowfall ranges from 10 to 30 inches in the lower valleys increasing to over 250 inches in the higher elevations.

Land Management

Olympic National Park, administered by the National Park Service, Department of the Interior, is 914,579 acres in size and includes most of the Olympic Mountains in the core of the peninsula as well as a narrow strip on the Pacific coast. The park is administered pursuant to the Organic Act of 1916 which established the National Park System and the Act of 1938 which established Olympic National Park. Surrounding the park on most sides is the Olympic National Forest, which encompasses 649,704 acres of rugged mountains and densely forested lands. Administered by the U.S. Forest Service, Department of Agriculture, the national forest is managed for multiple of uses in accordance with the National Forest Management Act of 1976 and numerous other Acts. The U.S. Fish and Wildlife Service administers a series of coastal islands and coast lands as part of the National Wildlife Refuge System.

In the western reaches of the peninsula are substantial lands administered by the State of Washington Department of Natural Resources. The state received these lands as part of its selections under the Statehood Act and other authorities. These lands, many of which have a common boundary with the park and forest, are managed primarily for timber production and largely in support of the state school system. The largest land management unit for the State is the Clearwater unit, encompassing some 92,000 acres. Private lands, including thousands of acres owned by major timber companies, complete the land ownership on the peninsula.

Located along the coast are several Indian Reservations, the largest being the Quinault Reservation. Active communities today, the reservation lands are administered for a variety of uses in support of tribal programs. Along the coastal strip, the Hoh, Quileute, and Ozette Indian Reservations are surrounded by park lands. The Makah Reservation on the north and the Quinault Reservation on the south have common boundaries with the coastal portion of the park.

The Olympic Forest Reserve was established in 1897 by Federal Executive Order of President Cleveland. Originally more than two million acres, the reserve's acreage was reduced substantially in 1900 and 1901 during President McKinley's term when the most heavily forested lands on the northwestern parts of the reserve were eliminated.

In 1909, President Theodore Roosevelt signed a proclamation establishing the Mount Olympus National Monument of some 600,000 acres in size. During World War I, President Wilson reduced the monument's size by half as a wartime emergency to make the lands available for other uses. The area deleted was not logged but was used by the Army's Spruce Division where a railroad was constructed along Lake Crescent.

In 1929, President Calvin Coolidge reduced the monument further by 640 acres to permit the construction of a dam on the Elwha River. In 1933 a Presidential Executive order transferred the Mount Olympus National Monument to the National Park Service. In 1938 Congress passed legislation, with the strong support of President Franklin Roosevelt, which established Olympic National Park. Subsequent boundary modifications to the park in 1940, 1943, 1953, and 1976 have brought the park to its current size, 914,579 acres.

In 1981 UNESCO's World Heritage Committee accepted Olympic National Park as a World Heritage Site. Olympic qualified for this special honor because it possesses "outstanding universal value to mankind." The International Union for the Conservation of Nature (IUCN) has called the park "the best natural area in the Pacific Northwest section of the United States with a spectacular coastline, scenic lakes, majestic mountains and glaciers, and magnificent temperate rain forests ... it is unmatched in the world." The park has also been designated as a biosphere reserve under the UNESCO Man and the Biosphere program. This recognizes the international significance of the Olympic Peninsula ecosystem.

Geology

The Olympic Peninsula contains some of the most complex geology on the Pacific Coast. It is part of the Pacific Rim which is an extensive zone of mountain building, volcanism and earthquakes. The Juan de Fuca Ridge, a deep sea volcanic ridge, is the source of the northern portion of the oceanic plate that lies just offshore. The Olympics consist of marine

volcanic and sedimentary rocks which have been scraped off the ocean floor and added onto the continental edge as the Pacific Plate moved away from the Juan de Fuca Ridge and plunged beneath the westward moving North American continent. Both uplift and lateral movement have been periodic. Glaciation and stream erosion have tremendously sculpted the landscape.

The most recent regional uplift occurred slowly at first but has become more rapid during the past 10 million years. The mountain building process has caused folding, faulting, and metamorphism of rocks. Glaciation started about one million years ago. Ice pushed westward through the Strait of Juan de Fuca, along the northern Olympics and down from the mountains deepening the valleys, including the one that contains Lake Crescent and Lake Sutherland. As many as four separate glacial advances, the last ending some 13,000 years ago, have occurred in the region.

Minerals

There is no known mineral potential in the lands subject to this environmental assessment or their vicinity. With the exception of a small (inactive) manganese mining operation near Lake Crescent and historic operations at Little River and Staircase, no significant mining has occurred within the present park or the lands involved in the alternatives. Over 600 mining claim notices were filed before 1930 on the Olympic Peninsula, but assessment work was not done. Most of these claims have since been invalidated by the Bureau of Land Management. The manganese minerals involved in those early claims are mainly the oxide hausmannite and silicates, bementite, and neotocite.

A brief gold rush on the northern section of the coast occurred in 1894 when gold flakes were found in scattered patches of glacial outwash sands. The deposits proved very small.

Shows of oil and several small gas seeps occur at several places along the southern section of the Olympic coast. Since 1900, several nonproducing holes have been drilled, the last in 1982. No commercially exploitable mineral resources have been found. The lands subject to this assessment are not considered to have significant mineral resource potential.

Vegetation

Existing plant communities have developed in response to altitude, variation in temperature, available moisture, disturbance (man caused and natural), and other more subtle factors. In general, ecological constraints on use and for plant communities become greater with increasing altitude. Plant

communities become more fragile and the number of rare and endemic species increases. Climate is more severe. Soils are thinner and slopes are steeper.

The mixed lowland temperate forest covers most of the peninsula's coastal plain and lower mountain slopes (0 - 2,000 feet). Western hemlock is the regional climax species, but Sitka spruce, grand fir, and Douglas fir are also dominant. Western red cedar is scattered throughout, but is characteristic of swampy sites near the coast. Douglas fir, the principal successional tree, is a major source of commercial timber.

In the ocean facing valleys on the western flanks of the Olympics, there occurs one of the most productive forest ecosystems - the lowland temperate rain forest. The classic Olympic rain forest develops on second river terraces about 20 feet above water level. The open overstory of Sitka spruce and western hemlock overtops a dense understory of vine maple and bigleaf maple, the boughs of which are draped with mosses, club mosses, lichens, and ferns.

The montane coniferous forest (1,800 - 3,600 feet) is characterized by the Pacific silver fir as the climax species. Maples and other broadleaf species so characteristic of the lower elevation forests are absent. In the northern, eastern, and southern portions of the peninsula, the Douglas fir commonly mixes with western hemlock and extensive successional forests. On some of the drier slopes of the northeast and other rain shadow affected areas, forest succession is slow and Douglas fir, sometimes mixed with grand fir, is a long-term dominant.

Colder temperatures, damaging winds, poorer thin soils, late snow melt, and a short growing season characterize the subalpine coniferous forests (3,600-6,000 feet). Subalpine fir is abundant, with scattered Alaska yellow cedar present. Late snow melt restricts growth of herbaceous plants which may form lush meadows in clearings and upslope areas adjacent to forests.

Herbaceous plant communities or meadows in the subalpine zone (4,500 - 7,500 feet) provide spectacular summer wildflower displays. Most meadows occur in natural subalpine forest openings in locally extensive burned areas of former forest. Subalpine fir does invade many meadows. In some areas though, tree establishment and succession is so slow that the subalpine meadows become semi-permanent. Eight species of flowering plants are endemic to the Olympics.

Wildlife and Fish

Protection of the Roosevelt elk played a major role in the establishment of the original Mount Olympus National Monument and later Olympic National Park. This large coastal population of elk was first described scientifically in the Olympics and was given the name of Theodore Roosevelt.

At one point early in the century they were threatened due to heavy commercial harvest; today, herds are large, healthy and in stable numbers. Some 5,000 elk are believed to inhabit the heart of the peninsula in the park and forest. In several areas herds move between park and forest lands during the seasons. Elk are protected inside the park but are a popular game species on state and national forest lands.

Other common larger animals are the black-tailed deer, black bear, and cougar. Fifty species of smaller mammals and over two hundred species of birds have been identified on the peninsula. The Olympics serve as nesting habitat for bald eagles, osprey, and spotted owls. Peregrine falcons have been observed in the park and probably nest here.

The spotted owl, a disturbance sensitive species, has been the subject of much recent concern and investigation. It has been studied for possible classification and protection under the Endangered Species Act. In cooperation with the Washington Department of Game and the Washington Department of Natural Resources, the National Park Service and the U.S. Forest Service have been participating in a series of intensive investigations to learn more about the status of the owl on the peninsula. A series of Spotted Owl Management Areas (SOMAS) have been identified as critical habitat for the continued survival of the species. These SOMAS are located throughout the peninsula primarily on national forest lands. Current studies are underway to determine the distribution and relative abundance of owls within the park (the elevations in much of the park may be too high for the species) as well as the need for established SOMAS on State Department of Natural Resources lands.

Twenty native fish species, including five species of Pacific salmon, inhabit Olympic Peninsula waters. Serious declines in the numbers of native salmon and steelhead make federal lands an important reservoir for remaining wild gene pools and emphasize the ecological significance of the wild native stocks.

Water and Air Resources

There are hundreds of miles of unpolluted streams and rivers as well as clean air making the national park/forest area a popular destination for visitors. In many areas the melting glaciers left rock debris across natural drainages, thus helping form the many lakes on the peninsula.

Two of the major lakes on the peninsula are Lake Crescent in the northern reaches of the park and Lake Quinault in the southern reaches of the peninsula. Nine miles long and one mile wide Lake Crescent serves as a major natural resource as well as a popular recreation site for visitors. It has a maximum depth of 624 feet and covers 5,127 acres. The major tributary of the lake is Barnes Creek. The water of the lake, as well as

its tributaries, is crystal clear and takes on a deep blue tint. Two endemic forms of coastal rainbow and coastal cutthroat trout, the Beardsleii and Crescenti trout, are popular game species requiring special management attention. Several rare and sensitive plant species, including the giant helleborine orchid, water lobelia, whipplevine, and spiked water-milfoil, occur in the lake area.

Lake Quinault, located within the Quinault Indian Reservation, is a popular recreation site on the southern reaches of the peninsula. The south shore of the lake is within the Olympic National Forest where recreation homes, a resort, and public lands popular for outdoor recreation are located. The north shore of the lake is within the park. A public campground and substantial private lands are located within the park.

Human Use

The Olympic Peninsula with its rushing rivers, temperate rain forest, wild and isolated coastal shoreline, and spectacular mountainous backcountry, offers each visitor many recreational opportunities. Olympic National Forest has 17 campgrounds, 2 picnic areas, nature trails and over 200 miles of hiking trails. Olympic National Park offers the visitor 22 campgrounds, 6 picnic areas, 4 concession operated lodges, and some 600 miles of hiking trails.

The major recreation season takes place between June and late September. The peninsula receives moderate use during the winter months but that use has slowly been increasing. Cross-country and downhill skiing are important uses in the mountains during winter months.

No roads cross the heart of the peninsula. Population centers and human use focus along the edges of the park and forest. Campgrounds, travel routes, backcountry use and sport hunting (within the forest) and fishing comprise a majority of the public uses. Backcountry use is significant and has minimal impact upon the natural resources, especially compared to developed areas. Locally some backcountry sites have been affected by heavy use. Recent emphasis on wilderness camping practices and ethics has significantly mitigated the effects of use.

Almost all of the settlement on the Olympic Peninsula is along the salt water. The shoreline towns of Aberdeen, Hoquiam, Port Angeles, Shelton, and Port Townsend represent approximately 45 percent of the regional total. The local economy is largely based on forest products and tourism, with farming and commercial fishing of lesser importance. Tourism is increasing in local and regional importance for the economy. Regional employment has not kept pace with the state's employment growth rate. Total employment in forest products has declined slightly. Diversification has recently begun to have an impact on the economy with the introduction of a new manufacturing

business (helicopter manufacturing) to the peninsula. Also, the northern reaches of the peninsula in the Port Angeles, Sequim, and Dungeness area are increasingly popular for retired people.

Cultural Resources

The Native culture of the peninsula was based on an economy oriented to the sea, the shore, and rivers. From the offshore waters, early inhabitants took fish and sea mammals; from the intertidal zone, a variety of shellfish; and from rivers, the abundant salmon. These factors are reflected in the distribution and character of the Indian villages and camps. Large villages were established at strategic locations on the shore, where large, seagoing canoes could be safely beached and where sea mammals were readily available.

There are no known historic structures within the lands considered in the various alternatives.

Land Summary

Storm King/Baldy: Located above the waters of Lake Crescent, the Barnes Creek watershed is currently split between the forest and park. Located between 1,500 and 4,500 feet in elevation, this area is characterized by rock outcrops, steep cliffs, and forested valley floors. The existing boundary is located along section lines. The Storm King portion of the area includes the upper portion of the Barnes Creek watershed. This drainage supports major spawning areas for Lake Crescent trout populations. Mount Storm King is a popular destination for hikers on a trail system that originates at park facilities at Barnes Point.

The Storm King area has been identified as suitable habitat for the spotted owl and critical to meet SOMA spacing needs. It is classified as a SOMA by the U.S. Forest Service and the Washington Department of Game. The slopes and ridges of the Barnes Creek drainage represent a major portion of the scenic backdrop to visitors to Lake Crescent and surrounding environs. Marymere Falls is a popular destination and nature walk within the watershed. Mount Storm King is a popular hiking destination which provides a panoramic view of Lake Crescent.

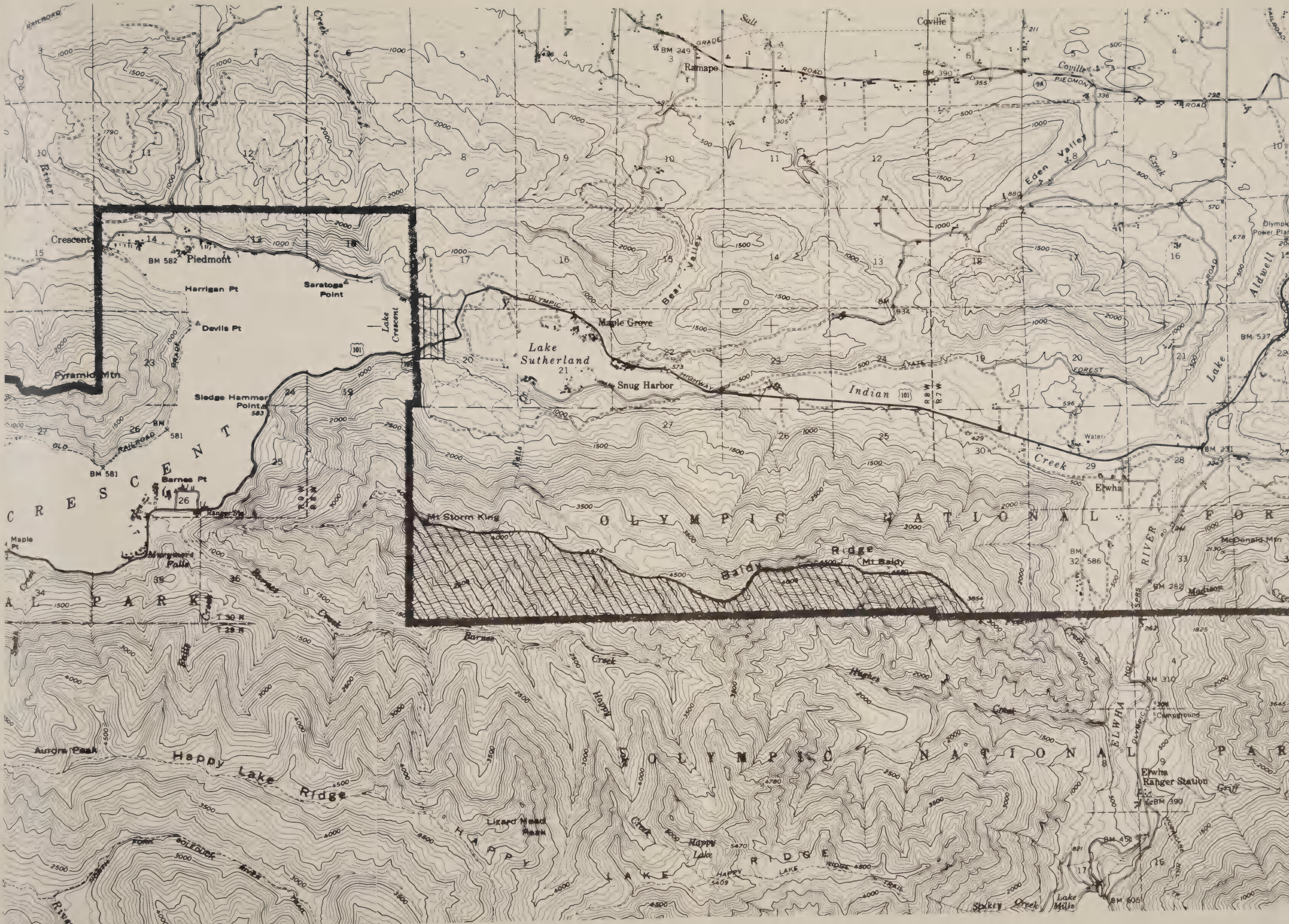
Approximately 1,300 acres of the drainage within the forest supports commercial forest. The existing old growth forest ecosystem (350 years old) is very dispersed with an average timber size of 22 inches dbh and a net volume of 30 thousand bf/ac. Species composition is Douglas fir 43%, mountain hemlock - western hemlock 40%, Alaska cedar 5%, Pacific silver fir 10%, and subalpine fir 2%. The area has many sheer cliffs, rocky outcrops, and steep slopes.

Rugged Ridge/Pine Mountain: Located on the divide between the Bogachiel and Soleduck River drainages, this is one of the more isolated areas of the park and forest on the peninsula. Located between 2,000 and 3,400 in elevation feet, the Bogachiel is one of the major west facing drainages in the heart of the rain forest. The upper Soleduck watershed is divided into two major management units. The south fork of the Soleduck (within the forest) is a prime forest management area while to the east the upper reaches of the mainstream of the Soleduck drainage are part of the park and contain numerous recreation facilities, including a lodge, campground, and trailheads. The Pine Mountain portion of the area is documented habitat for spotted owls and includes lands that are important for park elk populations as well.

Most of the existing boundary between the park and forest on the Bogachiel and Soleduck divide is on the watershed line. That one section of the boundary not on the watershed line is all old growth forest ecosystem over 400 years in age. The species composition is hemlock 75%, silver fir 20%, and western red cedar 5%. Average diameter is 24"-26" dbh. The area is characterized by a low grade high defect timber with a net volume of 40 thousand bf/ac. The Pine Mountain portion of the area is all commercial timber located on steep and rocky slopes. Species mix are western hemlock 40%, Pacific silver fir 40%, and Douglas fir, 20%. The timber in this area is all old growth, 350 - 400 years in age, with an average diameter of 24"dbh. If logged, this area would have heavy breakage due to the steepness and slope characteristics.

Quinault: Located in the southern portion of the peninsula, the Quinault drainage has been a critical resource area for both the park and forest. The Quinault is one of the major west facing drainages in the rain forest. Important for wilderness values and recreation, the area is also of great value for timber management.

The study area is located between 800 and 2,400 feet in elevation northwest of the lake. Lands on the forest side of the divide drain into the lower reaches of the watershed below Lake Quinault. To the east, the upper reaches of slopes on the park side of the divide drain into rivers that enter the lake and the Quinault River above the lake. The existing boundary, located on section lines, includes an existing logging road within the park. The existing boundary cuts across the watershed divide. The area is all old growth timber over 200 years in age with an average diameter of 21" dbh. Species composition is Pacific silver fir 65%, western hemlock 25%, and western red cedar 10%. Volume is 73 mbf/ac gross and 51 mbf/ac net. Productivity varies from moderate to poor depending upon the slopes and soils.



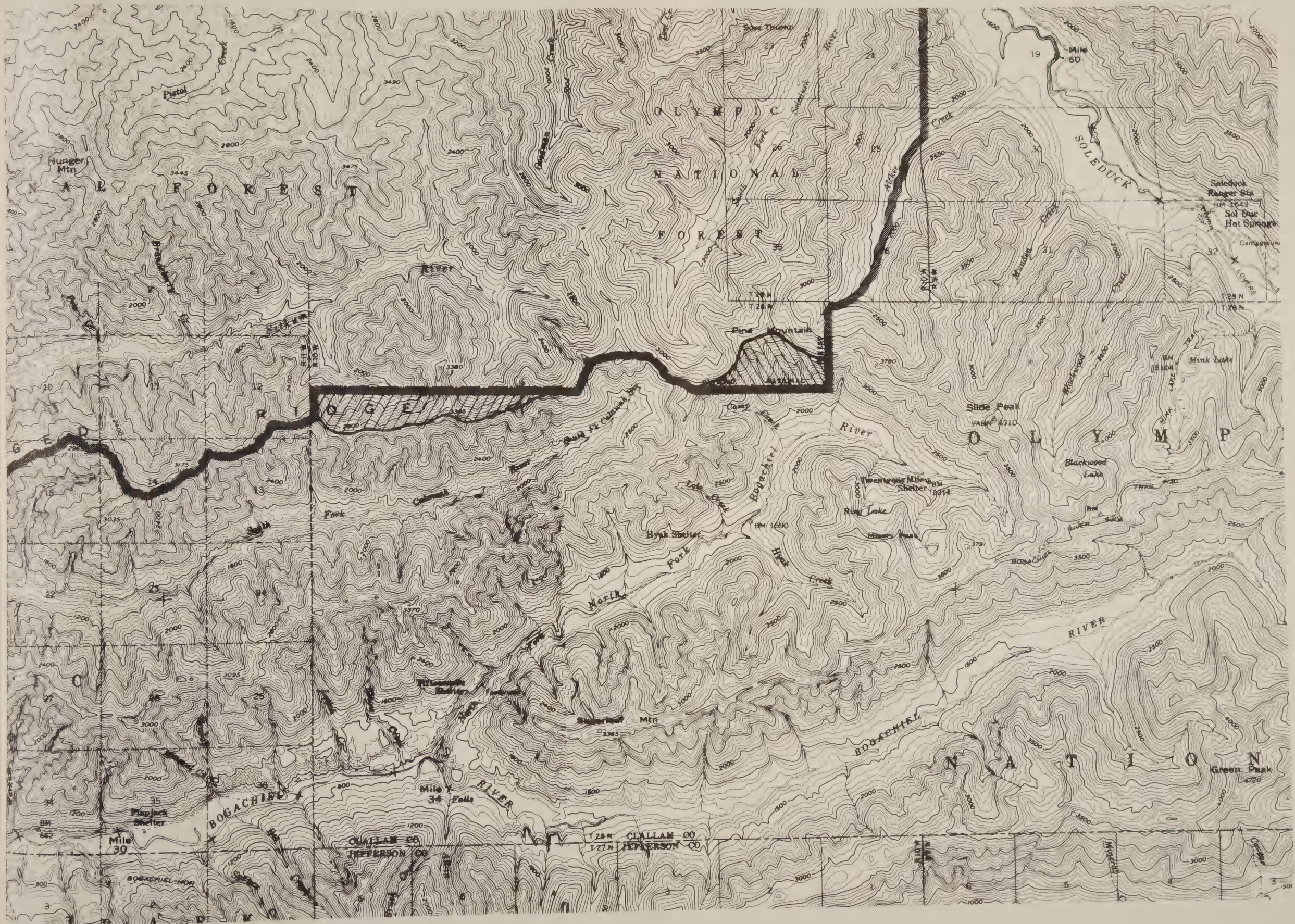
legend:

- Addition to O.N.P.
- Transfer O.N.F. to O.N.P.
- Transfer O.N.P. to O.N.F.

NORTH

0 1/2 1 2
Scale in miles

Storm King/Baldy/Lake Crescent



legend:

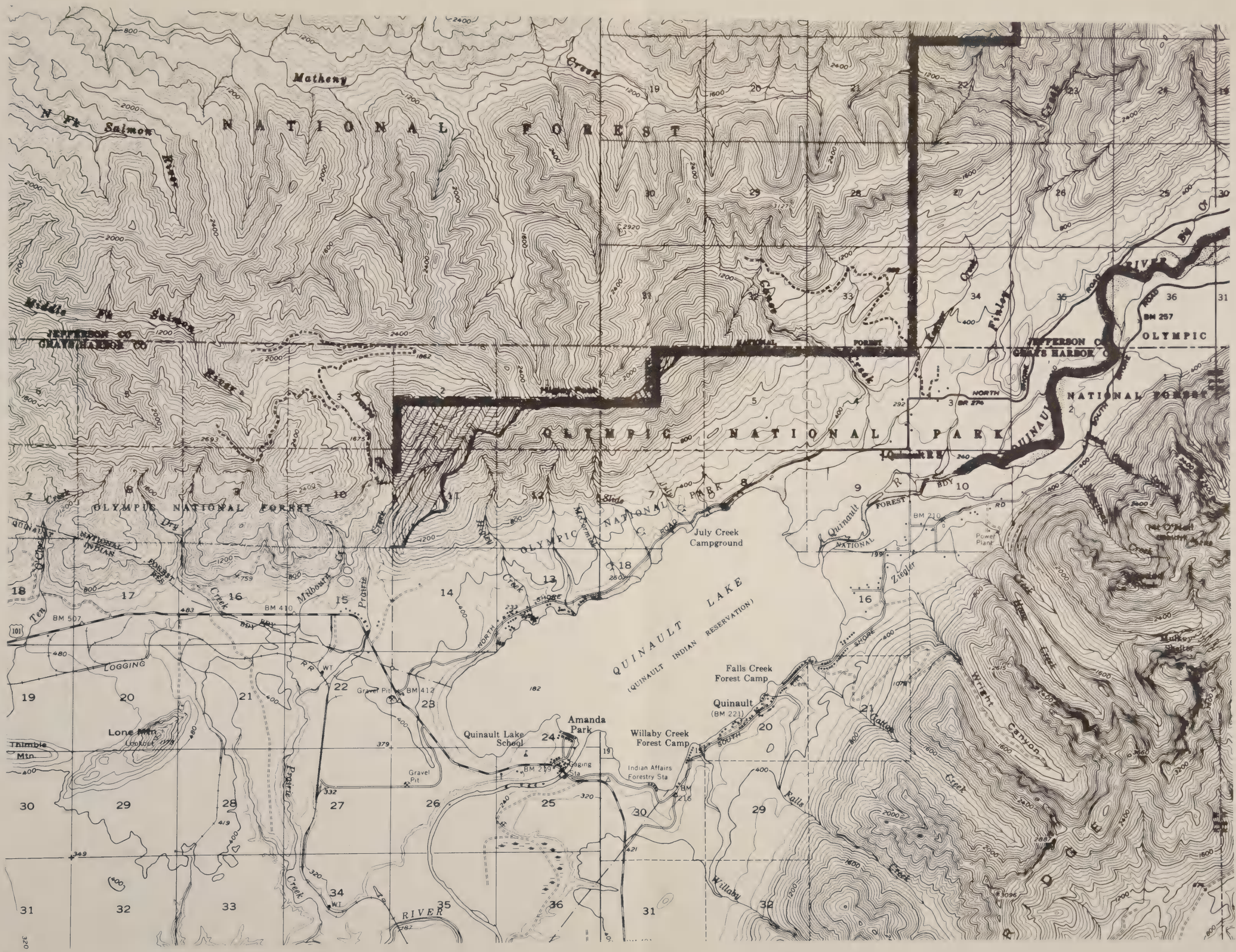
- Addition to O.N.P.
- Transfer O.N.F. to O.N.P.
- Transfer O.N.P. to O.N.F.

NORTH

0 1/2 1 2

Scale in miles

Rugged Ridge/Pine Mountain



legend:

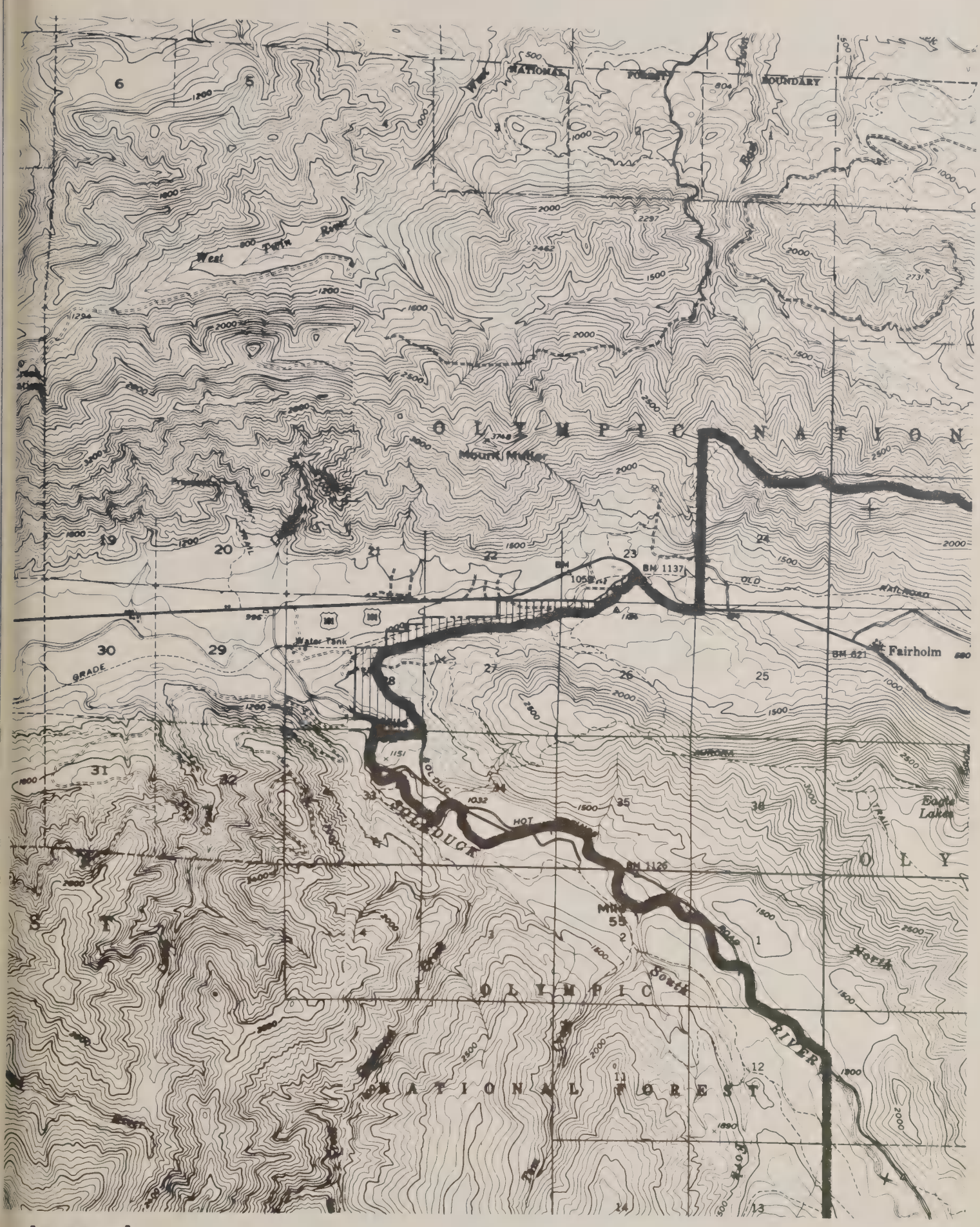
- Addition to O.N.P.
- Transfer O.N.F. to O.N.P.
- Transfer O.N.P. to O.N.F.

NORTH

0 1/2 1 2

Scale in miles

Lake Quinault



legend:

- Addition to O.N.P.
- Transfer O.N.F. to O.N.P.
- Transfer O.N.P. to O.N.F.

NORTH

0 1/2 1

Scale in miles

Soleduck

ALTERNATIVES

When working with proposed boundary adjustments which potentially cover several hundred miles of boundary, there are a large number of variations and alternatives that can be included into any package. The alternatives discussed and considered include the preferred alternative, which is recommended for enactment by Congress, and additional alternatives that were considered in the joint study but not adopted as part of the preferred alternative.

1. Preferred Alternative:

Minor boundary adjustments between Olympic National Park and Olympic National Forest would be made and lands affected would be exchanged between the two federal agencies. The purpose of these minor adjustments would be to facilitate federal land management, save on management costs, and further the missions of both agencies. The elements of the proposal would include the following:

Exchange Summary

AREA	FOREST TO PARK ACREAGE	PARK TO FOREST ACREAGE	TOTAL ACREAGE
STORM KING/BALDY	1717		1717
RUGGED RIDGE			773
Rugged Ridge		555	
Pine Mountain	218		
QUINAULT			700
Higley Peak	19		
Canoe Creek		34	
Prairie Creek		647	
TOTALS	1954	1236	3190
NET	+718		

Additionally, a series of minor boundary changes and land additions would be made to Olympic National Park in the vicinity of Lake Crescent and along the Soleduck Road. At the eastern end of Lake Crescent lands which are in the

watershed and are the scenic backdrop of the lake would be added to the park. These lands are currently owned by a private landowner. This addition was identified in the park's Land Protection Plan as a critical addition.

Along the Soleduck Road, a strip of land along the first four miles of the road would be added to the park. The addition includes lands owned by the State of Washington Department of Natural Resources, a timber company and an individual. These non-federal holdings are currently inholdings within the Olympic National Forest. The existing boundary between the park and forest along the Soleduck Road would be modified accordingly to include them within the park.

OLYMPIC NATIONAL PARK:	
Lake Crescent addition:	80.00 acres
Soleduck addition:	183.00 acres
Transfer from Forest Service:	1,954.00 acres
TOTAL ADDITION	2,217.00 acres
Transfer from Park to Forest:	1,236.00 acres
Net addition to Park:	+ 981.00 acres
OLYMPIC NATIONAL FOREST:	
Transfer from Park Service:	1,236.00 acres
Transfer from Forest to Park:	1,954.00 acres
Net reduction from Forest:	- 718.00 acres

2. No Action Alternative:

The existing boundaries of the park and forest would remain unchanged. Existing land management programs, policies, and planning programs governing the management of the park and forest lands involved in the study would remain the same. Existing problems identified in the purpose and need section would remain in effect.

3. Modify Alternative 1 to Include Additional Boundary Modifications:

Consistent with the purposes of the study, specific boundary changes, other than those identified in the preferred alternative, were reviewed and evaluated. Each was dropped from the recommendation for specific reasons.

a. Eastern Boundary. The existing boundary between the park and forest in the eastern portion of the Olympic Peninsula would be modified, adopting natural features and hydrographic divides to separate management jurisdictions. Lands in the upper Skokomish which drain into the river above Lake Cushman would be added to the park. Upper Lena Lake would be transferred to the forest. The boundary that cuts across the Duckabush and Dosewallips Rivers would be modified to adopt ridge tops and have point-to-point boundaries from peaks to adopt natural features for a boundary. The wilderness areas established on National Forest lands would be modified accordingly. This includes forest lands now in wilderness. Elements from this alternative were considered early in the study, but were dropped when Congress designated wilderness on the forest in this area.

b. Sams River/Finley Creek. In the southwestern portion of the peninsula the existing boundary between the park and forest which cuts across the Sams River drainage would be modified along the hydrographic divide so that the Sams River drainage would be totally within the forest and the Queets and Quinault drainages in this area would be within the park. This would transfer the Sams River drainage to the forest, approximately 360 acres, and the Finley Creek drainage (tributary of the Quinault) to the park, approximately 225 acres. This alternative was not included within the preferred alternative due to the significant effects its adoption would have upon park resources.

c. Madison Creek and Alckee Creek. In the northern reaches of the peninsula the boundary between the park and forest would be modified in two areas. The upper portion of the Madison Creek drainage (tributary of the Elwha) would be transferred from the forest to the park. This addition of 482 acres would include the entire Madison Creek drainage within the park. In the Soleduck drainage the existing boundary would be modified to be along Alckee Creek (tributary of the Soleduck) resulting in a transfer from the park to the forest of approximately 640 acres. The Alckee Creek portion of the transfer was not included due to the significant effect that timber harvest of these lands would have upon park and recreation resources. The transfer of Madison Creek to the park without a corresponding transfer to the forest would effect the "balance" of the preferred alternative and therefore, was not included.

4. Move all Olympic National Forest and Olympic National Park Common Boundaries to Hydrographic Features:

Major changes in the existing boundaries of the park and forest would be made. This includes all of the lands identified within the preferred alternative and alternative 3. In addition, boundary changes would be made in the Queets drainage, the Quinault drainage, and the northeast corner of the peninsula in the Grey Wolf-Dungeness area. This alternative was not considered as it would result in changes being made that do not serve the purposes of either agency. In some areas, such as the lower Queets, the lowland terrain does not lend itself to natural features being used for boundaries. In other areas where boundaries cut across drainages there are not significant differences between boundaries on natural features compared to straight lines.

ENVIRONMENTAL CONSEQUENCES

General and Items Common To All Alternatives:

All of the lands involved in all alternatives for boundary adjustments between the park and forest would remain in federal ownership and management. The effect of the exchange would be to transfer lands between park and forest management. The would serve to allow or prohibit certain uses on any lands so transferred.

Lands in national parks are closed to sport hunting, timber cutting, mineral entry, and development. National forest lands are open to these multiple uses, except within designated wilderness areas, pursuant to forest management planning. On lands designated wilderness in the forest hunting is allowed, but all forms of development, including timber harvest and mineral entry, are prohibited. Motorized access is also prohibited. Park and forest lands are open for a variety of outdoor recreation activities such as hiking, camping, and fishing. Regulation of these activities may vary in selected areas. Thus, the effect of any exchange and alternative would be to open or close lands to these potential uses.

Preferred Alternative

General: Transfer of the lands between the park and forest would facilitate resource management and reduce long-term management costs for both federal agencies. Boundaries would relate to natural ecological systems and would be located along natural divides, features and watersheds. Boundaries would also be in more identifiable locations and thus easier for the public and land managers to locate.

The net effect of the interagency transfer will be a net increase in acreage to Olympic National Park. Not all of the lands to be transferred are commercial forest lands. While there will be a minor net loss to commercial timber lands on Olympic National Forest transferring the Rugged Ridge tract to the forest will allow access to be developed to existing forest lands currently effectively isolated by the park. The effect on timber management would be to make tracts that are easier to harvest available. Pine Mountain and Storm King/Baldy would be difficult to harvest, even though they are in the current timber base. These would be replaced by the Rugged Ridge and Quinault tracts that would be less expensive to harvest and can be cut with less impact on the environment than the tracts transferred to the park. Access is easier, less expensive, and soils more stable for the tracts added to the forest compared to those transferred to the park.

There is no known effect of this exchange upon cultural resources or mineral resources.

Storm King/Baldy: Located above the waters of Lake Crescent the transfer of the Storm King/Baldy area would include the entire Barnes Creek drainage in the park. As the major tributary of the lake, Barnes Creek makes a significant contribution to the water quality and quantity of Lake Crescent. The watershed values of major trout spawning streams would be preserved and would support resource management objectives of the park.

The northern management unit of the forest, including this area, is identified in current forest planning as a retraction area. The Forest Service is currently negotiating an exchange with the State of Washington Department of Natural Resources for most of the forest lands in this area in exchange for DNR lands in the Soleduck Valley. The State has indicated that they are not interested in the Storm King/Baldy area. Thus, the transfer to the park facilitates the other exchanges under negotiation which eventually allow for consolidation of ownerships in the Soleduck more likely to occur. These exchanges will result in consolidated ownerships and associated cost savings to all the managing agencies.

Current trail maintenance on the Storm King trail stops at the park boundary, short of the summit. Consolidation of the area under a single jurisdiction would allow for the reopening of this historically popular hiking trail to the top of Mount Storm King. The scenic values of the valley would be preserved; thus the views of this valley from the western ends of Lake crescent would remain intact.

Transfer to the park would remove these lands from commercial forest production and potential timber harvest. Identified as important habitat for the spotted owl, transfer to the park will insure that the old growth habitat essential to the owls' existence remains intact.

Rugged Ridge/Pine Mountain: This area is one of the more isolated portions of the peninsula. The exchange of lands would result in this entire section of the boundary between the park and forest being along natural features.

The Rugged Ridge portion of the tract to be transferred to the forest will contribute to forest management, as the entire acreage in the tract is in a commercial productive classification. Access to 4,500 acres of existing forest lands in the Soleduck basin, which are now effectively isolated because of the park boundary, will be improved. Once transfer occurs roads can be constructed. Thus, the possibility of significant resource damage on steep slopes which might occur if alternate routes were attempted would be avoided. Roads would be constructed on stable soils, thus avoiding headwall construction and unstable soils that otherwise might be impacted with alternate routes. Savings of $1,300,000 in road construction costs would be realized.

Transfer to the forest will open these lands, now protected from timber harvest, to production. Road construction, timber harvest, and the associated impacts of such uses can occur. No adverse effects to the park are anticipated in such development as all development would occur on the national forest side of the divide. No ridge top roads within the park would be allowed. Public access into this portion of the peninsula will be increased.

The Pine Mountain transfer from the forest to the park will protect from all future development the scenic backdrop to the upper reaches of the Bogachiel watershed in the heart of the park. Watershed and wilderness values of the upper reaches of the Bogachiel will now all be included within the park. Important spotted owl old growth habitat will not be harvested. While these lands would be lost to the commercial forest base of the forest, the Pine Mountain unit is located in an area of steep slopes and would be very difficult to log. Thus there is no significant loss to the commercial cut seen with this transfer.

Quinault: Adopting a watershed boundary will provide a clearly definable boundary between park and forest. The transfer from park to forest would include an existing forest logging road that currently lies within the park. The portion of the tract to be transferred to the forest will contribute to forest management, as the entire acreage in the tract is in a commercial productive classification. Transfer to the forest will open these lands now protected from timber harvest to production. Road construction, timber harvest, and the associated impacts of such uses can occur. No adverse effects to the park are anticipated in such development as all development would occur on the national forest side of the divide. No ridge top roads within the park would be allowed. Public access into this portion of the peninsula will be improved for a variety of users. Hunters will not have to

pass through a portion of the park as they currently do on the section of road at Higley Peak. Consolidated ownership of the existing road onto forest lands will facilitate road maintenance allowing for a single standard to be applied, thus saving costs.

The transfer of the small portion of the tract from the forest to the park will include watershed and scenic lands above Lake Quinault within the park.

Soleduck/Lake Crescent Additions: The addition of the lands east of Lake Crescent to the park will have the effect of protecting the watershed and viewshed of the lake environment. Water quality will be enhanced through less opportunity for adverse impacts. The slopes above Lake Crescent are currently zoned by Clallam County as F-1 for forest management. Commercial development, expect for those forms of development that support recreational uses such as a store or campground, are currently prohibited. Thus, there would be minimum of impact upon potential commercial development.

The acquisition of the private lands by the park would have a negative effect upon the tax revenue to the county as these lands would be removed from the tax base. Potential timber revenue to the county if the lands are logged would also be lost.

Alternative 2 - No Action:

The status quo would be maintained. None of the effects discussed in the preferred alternative would occur. The problems and issues identified with the existing boundaries would not change.

Alternative 3 - Additional Boundary Modifications:

a. Eastern Boundary Modification. The proposal would take on more dimension as the acreages involved in potential transfers would be expanded considerably. Potential boundary changes along the east side of the peninsula would still involve boundaries that cut across watersheds. Popular park destinations such as Staircase and Dosewallips would remain within the park. Thus, any new boundary would have minimum benefits that true watershed boundaries provide.

The wilderness areas established by the Congress in 1984 would be altered, with some lands being transferred from forest wilderness to park. Park lands would also be transferred to the forest that have potential for wilderness designation and are currently recommended for park wilderness. The legislative history of the Washington Wilderness Act indicates that a major goal of that act was to resolve longstanding issues and confusion as to what lands should be designated as wilderness. Boundary proposals along

this area could have the effect of requiring additional wilderness studies and creating new uncertainty as to the suitability of certain lands for wilderness. Many of the issues "resolved" by the Congress in 1984 would be reopened.

Much of the lands along this existing boundary are above the tree line. Also, since much of any change that would occur as a result of this alternative involves lands designated or recommended for wilderness, the effects of any change are minimal. Many of the potential uses of forest lands, such as timber harvest or mineral entry, are prohibited in forest wilderness. Thus, the major change would be opening or closing certain lands to sport hunting.

b. Sams River/Finley Creek Modification. In addition to the general impacts of allowing certain uses to occur on forest lands and closing other lands to those same uses if included in the park, this alternative has specific impacts. The transfer of the entire Sams River drainage to the forest would create an intrusion into the integrity of the park creating a peninsula of forest lands surrounded on three sides by park lands. This would significantly affect the park. Creating new access, timber harvest and associated impacts such as noise into an area that is adjacent to the heart of the park would affect visitor use in the area and alter wilderness values of the park.

The availability of the Sams River drainage for hunting would be increased. The existing boundary causes some confusion for hunters as they do not know when they cross into the park where hunting is prohibited. The existing boundary is not marked. This confusion would be eliminated. Management costs to protect the park from poaching would be increased significantly as access to major sections of the Quinault drainages within the park would be increased. Roads and development that would occur in the Sams River drainage would significantly affect the various wildlife populations, especially elk and spotted owls of the park. Existing wildlife populations in the Quinault and Queets drainages would be significantly affected.

The headwaters of Finley Creek, a major drainage of the upper Quinault River, would be included and protected within the park. The visual integrity of the upper watershed would be maintained as timber sales and road building would not occur. The inclusion of the Finley Creek drainage would effectively cut access to other portions of the forest. Existing terrain, slopes, and soil conditions make road building more costly if portions of the Finley Creek drainage are not utilized. Some existing forest lands could be totally cut off without the use of a portion of the headwaters of Finley Creek. Existing lands planned and scheduled for current timber sales would have to be cancelled. Thus, there would be additional costs involved in planning for substitute sale areas.

c. Madison Creek/Alckee Creek. In addition to the general effects of transferring lands between park and forest management, the removal of Alckee Creek from the park would adversely affect the scenic integrity of the existing park environment. Located directly across the Soleduck River from the park road, this potential deletion is in an area planned for major interpretation and environmental education activities along the rebuilt Soleduck Road (planned for construction in 1976 and subject to separate environmental documents). This area is the immediate scenic backdrop for park visitors to the Soleduck.

Addition of this portion of the drainage to the forest would increase the timber base for the forest. Alckee Creek is a major drainage to the main stem of the Soleduck and is important for the salmon and steelhead fishery within the river. The Soleduck is one of the major anadromous fishery rivers within the park and is very important to the preservation of the wild genetic stocks of salmon. The portions of the Soleduck River in this area are considered important habitat for bald eagles (an endangered species) by the U.S. Fish and Wildlife Service. Construction and timber management have the potential of affecting the water quality and quantity of the river and, therefore, the fishery and eagle populations.

The addition of the Madison Creek drainage to the park would include the entire watershed of this tributary of the Elwha River within the park. The lands are considered critical habitat for the spotted owl and are classified as a SOMA. Madison Creek enters the Elwha near the existing park boundary, thus, only a minor portion of the park watershed would be affected.

4. Modify All Park and Forest Common Boundaries:

In addition to the general effects described earlier, this alternative would not achieve the stated goals of the study. Changes would be made in areas where no issues or problems exist in the current boundaries. In some areas, such as the lower Queets, the lowland terrain does not lend itself to natural features being used for boundaries. Thus, confusion in locating boundaries could result. In other areas where boundaries cut across drainages there are not significant differences between boundaries on natural features compared to straight lines. Thus, no significant change would result. Many of these areas have established recognized boundaries. Additional costs would be involved in relocating and remarking these existing boundaries.

Potential boundary changes along the east side of the peninsula would still involve boundaries that cut across watersheds. The wilderness areas established by the Congress in 1984 would be altered, with some lands being transferred from forest wilderness to park. Park lands would also be transferred to the forest that have potential for wilderness designation and are currently recommended for park wilderness. The legislative history of

the Washington Wilderness Act indicates that a major goal of that act was to resolve longstanding issues and confusion as to what lands should be designated as wilderness. Boundary proposals along this area could have the effect of requiring additional wilderness studies and creating new uncertainty as to the suitability of certain lands for wilderness. Many of the issues "resolved" by the Congress in 1984 would be reopened.

MITIGATING MEASURES:

The nature of this proposal in that most of the lands included are to be exchanged represents a major mitigating measure in itself. The major effects of adding or deleting lands to either the park or the forest are offset by the lands to be exchanged. Also, most of the lands included in the various alternatives are existing public lands and would remain so.

The effect of reducing the county tax base by the acquisition of the 263 acres of private lands to be added to the park would partially be offset by the Payment in Lieu of Taxes authority. Payments for a period of five years would be made by the United States, subject to appropriation by Congress, to partially compensate the county for lost revenue.

The current confusion that the existing boundary causes for the public in the Sams River area will be resolved by marking the existing boundary. The park and forest will cooperate in marking the existing boundary with signs so that individuals will know when they are in the park or forest.

CONSULTATION AND COORDINATION

Extensive consultation has occurred for several years leading up to this recommendation. Public participation in the various land management studies and planning processes of both the forest and the park (land protection plan, park and forest general management plans, development concept plans) have laid the foundation for these recommendations. Recommended alternatives received from the public were included in the planning and review.

The superintendent of Olympic National Park, the forest supervisor of Olympic National Forest, and the staff and personnel from both agencies have been involved in the decision making process in terms of impacts on the environment, management and operations, and selection of the preferred alternative.

Information was gathered from several state and federal agencies, including the State of Washington Department of Game, the Department of Natural Resources the U.S. Geological Survey and the U.S. Fish and Wildlife Service concerning the description of and effects upon the resources in the lands involved in the alternatives.

This environmental assessment will be available to the public for a period of 30 days for public review. Upon completion of the public review period, all comments will be analyzed before any specific recommendation is made to Congress concerning possible changes in the park and forest boundary. The park and forest staff will also be meeting with interested groups and organizations concerning the elements of this proposal.

Additional information on this proposal can be obtained from the following:

Robert S. Chandler
Superintendent
Olympic National Park
600 East Park Avenue
Port Angeles, WA 98362

Ted C. Stubblefield
Forest Supervisor
Olympic National Forest
Federal Building - P.O. Box 2288
Olympia, WA 98507